

IN THE CLAIMS

A clean copy of the amended claims is shown below. Please amend claims 1, 5, 7-16, 20-26, and 29, as shown. Please cancel claims 2 and 3. A marked-up copy of the claims showing changes made is attached to this Amendment.

- 1) (Amended) A composition useful in preparing melt spun textile fibers comprising a polyurethane polymer prepared from at least one diisocyanate monomer and at least two diol monomers, a first diol monomer having a number average molecular weight of about 1,000 to about 8,000 and a second diol monomer having a molecular weight of about 62 to about 118, said polyurethane having a number average molecular weight of about 200,000 and above, a tenacity of about 0.6 gm/denier and above, and an elongation of about 400% and above, wherein said first and second diol monomers are always reacted separately during preparation of the polyurethane polymer.
- 2) (Cancelled)
- 3) (Cancelled)
- 4) (Original) A composition according to claim 1 wherein the first diol monomer is a member selected from the group consisting of a polyether diol, a polyester diol and a mixed polyether-polyester diol.
- 5) (Amended) A composition according to claim 1 wherein the at least one diisocyanate monomer is a member selected from the group consisting of aliphatic monomers having terminal isocyanate groups, aromatic monomers having terminal isocyanate groups, mixtures of said aliphatic and aromatic monomers, mixtures of

B' Court

isomers of an aliphatic monomer having terminal isocyanate groups and mixtures of isomers of an aromatic monomer having terminal isocyanate groups.

- 6) (Original) A composition according to claim 5 wherein the at least one diisocyanate monomer is a member selected from the group consisting of 1, 6-hexane diisocyanate, toluene diisocyanate isomers and methylene bis (phenylisocyanate) isomers.
- 7) (Amended) A composition according to claim 1 wherein the polyurethane polymer contains "hard" segments and "soft" segments, said segments arranged in an orderly fashion.
- 8) (Amended) A composition according to claim 1 wherein the polyurethane polymer contains urea functionality obtained by post-treatment of the polyurethane polymer with a diamine which is a member selected from the group consisting of ethylene diamine; hexamethylene diamine; 1, 4-diaminocyclohexane; p-phenylenediamine; 3, 3'-diaminodipropyl ether; diaminodibutylsulfide; and propylene diamine.
- 9) (Amended) A composition according to claim 8 wherein the diamine comprises ethylene diamine.
- 10) (Amended) A process of preparing a polyurethane polymer fiber precursor, the process comprising the steps of:
- a) obtaining a polyol prepolymer which is a member selected from the group consisting of hydroxyl terminated polyester glycols, hydroxyl terminated polyether glycols, hydroxyl terminated polyether/polyester glycols, and mixtures thereof;

- b) adding a first organic diisocyanate to the polyol prepolymer wherein the mole ratio of isocyanate group to hydroxy group is about 2:1 to 1:1.1 to obtain a first mixture;
- c) reacting the first mixture of first organic diisocyanate and polyol prepolymer at a temperature of about 60°C to about 100°C and at atmospheric pressure for a time of about 20 minutes to about 100 minutes to obtain a “soft” polymer;
- d) obtaining a glycol having terminal hydroxyl groups;
- e) adding a second organic diisocyanate to the glycol wherein the mole ratio of isocyanate to hydroxyl is about 1:2 to about 1:1.2 to obtain a second mixture;
- f) reacting the second mixture of second organic diisocyanate and glycol at a temperature of about 50°C to about 70°C and at atmospheric pressure for a time of about 2 minutes to about 10 minutes to obtain a “hard” polymer;
- g) combining the “soft” polymer from (c) with the “hard” polymer from (f) in an extruder to obtain a combination of polymers wherein the mole ratio of isocyanate functionality to hydroxyl functionality in the combination is about 0.98:1 to about 1.2:1;
- h) reacting the combination of polymers in the extruder under suitable reaction conditions and at a temperature of about 125°C to about 260°C for a time of about 2 minutes to about 8 minutes and at atmospheric pressure to obtain a final polyurethane polymer; and
- j) extruding the final polyurethane polymer to obtain a solid product of polyurethane polymer fiber precursor.

B11
cont

11) (Amended) A process according to claim 10 further comprising the steps of:

- k) pelletizing the solid product of polyurethane polymer fiber precursor;
- l) melting the pelletized solid product; and
- m) spinning the melted product to obtain a polyurethane polymer fiber.

12) (Amended) A polyurethane polymer fiber prepared according to the process of claim 11.

13) (Amended) A process according to claim 10 further comprising the steps of:

- (k') pelletizing the solid product of polyurethane polymer fiber precursor;
- (l') melting the pelletized solid product; and
- (m') spinning the melted product in the presence of a diamine vapor which diamine is a member selected from the group consisting of ethylene diamine; hexamethylene diamine; 1, 4-diaminocyclohexane; p-phenylenediamine; 3, 3'-diaminodipropyl ether; diaminodibutylsulfide; and propylene diamine; to obtain a polyurethane polymer fiber which contains urea functionality.

14) (Amended) A polyurethane polymer fiber which contains urea functionality prepared according to the process of claim 13.

15) (Amended) A process according to claim 10 further comprising the steps of:

- (k'') pelletizing the solid product of polyurethane polymer fiber precursor;

(l'') melting the pelletized solid product; and
(m'') spinning the melted product into an aqueous solution of diamine which diamine is a member selected from the group consisting of ethylene diamine; hexamethylenediamine; 1, 4-diaminocyclohexane; p-phenylenediamine; 3, 3'-diaminopropyl ether; diaminodibutylsulfide; and propylene diamine; to obtain a polyurethane polymer fiber which contains urea functionality.

- 16) (Amended) A polyurethane polymer fiber which contains urea functionality prepared according to the process of claim 15.
- 17) (Original) A process according to claim 10 wherein the polyol prepolymer of step (a) is a liquid under standard conditions of temperature and pressure.
- 18) (Original) A process according to claim 10 wherein the first organic diisocyanate of step (b) and the second diisocyanate of step (e) are each a member selected from the group consisting of 1, 6-hexane diisocyanate, toluene diisocyanate isomers, and methylene bis (phenylisocyanate) isomers.
- 19) (Original) A process according to claim 10 wherein step (h) is conducted in the presence of a catalyst.
- 20) (Amended) A process for preparing a polyurethane polymer fiber precursor, the process comprising the steps of:
- (a) obtaining a polyol prepolymer which is a member selected from the group consisting of hydroxyl terminated polyester glycols,

- hydroxyl terminated polyether glycols, hydroxyl terminated polyether/polyester glycols, and mixtures thereof;
- (b) adding a first organic diisocyanate to the polyol prepolymer wherein the mole ratio of isocyanate to hydroxyl is about 2:1 to about 1:1.1 to obtain a first mixture;
 - (c) reacting the first mixture of first organic diisocyanate and polyol prepolymer at a temperature of about 60°C to about 100°C and at atmospheric pressure for a time of about 20 minutes to about 100 minutes to obtain a “soft” polymer;
 - (d) obtaining a glycol having terminal hydroxyl groups;
 - (e) obtaining a second organic diisocyanate;
 - (f) combining the “soft” polymer with the glycol of step (d) and the second organic diisocyanate of step (e) in a reaction extruder to obtain a combination of “soft” polymer, glycol and diisocyanate, wherein the mole ratio of isocyanate group to hydroxyl group is adjusted to approach 1:1, with the proviso that gel formation is avoided;
 - (g) reacting the combination of “soft” polymer, glycol and diisocyanate in the reaction extruder under suitable reaction conditions and at a temperature of about 125°C to about 260°C for a time of about 2 minutes to about 8 minutes and at atmospheric pressure to obtain a final polyurethane polymer; and
 - (h) extruding the final polyurethane polymer to obtain a solid product of poly urethane polymer fiber precursor.

21) (Amended) A process according to claim 20 further comprising the steps of:

- (j) pelletizing the solid product of polyurethane polymer fiber precursor;
- (k) melting the pelletized solid product; and

(l) spinning the melted product to obtain a polyurethane polymer fiber.

22) (Amended) A polyurethane polymer fiber prepared according to the process of claim 21.

23) (Amended) A process according to claim 20 further comprising the steps of:

(j') pelletizing the solid product of polyurethane polymer fiber precursor;

(k') melting the pelletized solid product; and

(l') spinning the melted product in the presence of a diamine vapor which is a member selected from the group consisting of ethylene diamine; hexamethylene diamine; 1, 4-diaminocyclohexane; p-phenylenediamine; 3, 3'-diaminopropyl ether; diaminodibutyl sulfide; and propylene diamine; to obtain a polyurethane polymer fiber which contains urea functionality.

24) (Amended) A polyurethane polymer fiber which contains urea functionality prepared according to the process of claim 23.

25) (Amended) A process according to claim 20 further comprising the steps of:

(j'') pelletizing the solid product of polyurethane polymer fiber precursor;

(k'') melting the pelletized solid product; and

(l'') spinning the melted product into an aqueous solution of a diamine which is a member selected from the group consisting of ethylene diamine; hexamethylene diamine; 1, 4-diaminocyclohexane; p-phenylenediamine; 3, 3'-diamino propyl

ether; diaminodibutyl sulfide; and propylene diamine; to obtain a polyurethane polymer fiber which contains urea functionality.

- 26) (Amended) A polyurethane polymer fiber which contains urea functionality prepared according to the process of claim 25.
- 27) (Original) A process according to claim 20 wherein the organic diisocyanate of step (b) is a liquid under standard conditions of temperature and pressure.
- 28) (Original) A process according to claim 20 wherein the organic diisocyanate of step (b) is a member selected from the group consisting of 1, 6-hexane diisocyanate, toluene diisocyanate isomers, and methylene bis (phenylisocyanate) isomers.
- 29) (Amended) A process according to claim 20 wherein step (g) is conducted in the presence of a catalyst.
-